



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,785	02/20/2004	Thomas Richardson	LSI.94US01 (03-2049)	6953

24319 7590 10/23/2006

LSI LOGIC CORPORATION  
1621 BARBER LANE  
MS: D-106  
MILPITAS, CA 95035

EXAMINER

HASSAN, AURANGZEB

ART UNIT

PAPER NUMBER

2182

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/783,785	RICHARDSON ET AL.	
	Examiner	Art Unit	
	Aurangzeb Hassan	2182	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 12 - 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ninomiya (US Patent Number 5,809,330).

3. As per claim 12, Ninomiya teaches a method for determining the function of a circuit board (expansion unit, element 2, figure 1) disposed in a slot (detection via connectors, element 26 and 27, figure 1) in an enclosure comprising the steps of:

displaying an identifying characteristic of the slot inside of the enclosure (expansion connector detecting various possible characteristics in the form of multitude of expansion devices, column 7, lines 53 – 58);

detecting the displayed characteristic on the circuit board (upon connection routed to system bus for characteristics further determined by photo-sensors, column 7, lines 66-67, column 8, lines 1 – 10, the photo-sensors are the initiator in the process to determine the characteristic of the inserted option card, see further explanation for claim 1);

interpreting the detected characteristic on the circuit board; and

directing the circuit board to perform the function associated with the interpreted characteristic of the slot (CPU enables connectors and determining of characteristics between expansion unit and main unit, element 11, figure 1) .

The examiner notes that the determination of the function of a circuit board is not limited to one step of the photo-sensor detecting presence of an inserted option card. Once a card is inserted the apparatus of Ninomiya has a photo-sensors 30 and 31 figure 1, in conjunction with photo-emitters which generates card detection signals DTE1 and DTE2, as can be seen from the citation from the original office action. Upon generation of the DTE signals the process corresponds with address decoders that receive and decode the I/O address supplied to the system (column 8, lines 35 – 41) and the characteristics can be matched as seen in figure 4 and further can be configured via the I/O address map to determine the characteristic functionality of the option card seen in figure 5. Thus the examiner reasserts that the originally cited photo-sensor represents the detection step of an entire process of determining the characteristics and Ninomiya teaches the entire analogous process. (Please refer to examiners rebuttal in response to arguments for further analysis)

4. As per claim 13, Ninomiya teaches a method wherein said means located within said enclosure for displaying a characteristic of the slot comprises means for generating at least one signal, and at least one tab disposed within the interior of the slot capable of substantially reducing the at least one signal (light from photo emitter to

photoreceptor is considered at least one signal generated, column 8, lines 7 – 10).

5. As per claim 14, Ninomiya teaches a method wherein said means disposed on said circuit board for detecting the characteristic of the slot comprises means for detecting the at least one signal (photo sensors, elements 30-31, figure 1).

6. As per claim 15, Ninomiya teaches a method wherein said means for generating at least one signal comprises a source of light (photo emitter, column 8, lines 7 – 10), and wherein said means for detecting the characteristic of the slot comprises at least one light detector (photo-sensor, element 30, figure 1) adapted for detecting light generated from said source of light.

7. As per claim 16, Ninomiya teaches a method wherein said means displaying a characteristic of the slot comprises at least one source of light; and said means for detecting the characteristic of said slot comprises at least one light detector adapted for detecting light generated by said at least one source of light, whereby the pattern characteristic of the slot is reproduced by said at least one light detector.

8. As per claim 17 a method wherein said means for detecting the characteristic of the slot comprises at least one microswitch (microswitch, column 8, lines 33 – 35) and said means for displaying a characteristic of the slot comprises at least one projection positioned on a wall of said enclosure disposed in a pattern characteristic of the slot and

Art Unit: 2182

adapted to actuate one of said at least one microswitch when said circuit board is inserted into the slot, such that the characteristic of the slot is sensed by said at least one microswitch (mechanically detected by means of microswitch through detection of a change in voltage to certain pins of the expansion connector, column 8, lines 27 - 35).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 – 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya in view of Lee (US Patent Number 5,748,912).

11. The examiner has provided additional citations and explanation in order to better understand the rejection of claim 1 based on the originally cited prior art, Ninomiya.

12. As per claim 1, Ninomiya teaches an apparatus for determining the function of a circuit board (expansion unit, element 2, figure 1) disposed in a slot (detection via connectors, element 26 and 27, figure 1) in an enclosure and in electrical communication with said enclosure (laptop-type environment, figure 1), which comprises in combination: (a) means located within said enclosure for displaying an

Art Unit: 2182

identifying characteristic of the slot (expansion connector detecting various possible characteristics in the form of multitude of expansion devices, column 7, lines 53 – 58); (b) means disposed on said circuit board for detecting the characteristic (upon connection routed to system bus for characteristics further determined by photo-sensors, column 7, lines 66-67, column 8, lines 1 – 10, the photo-sensors are the initiator in the process to determine the characteristic of the inserted option card); and (c) a processor for interpreting the detected characteristic and for directing said circuit board to perform the function associated therewith (CPU enables connectors and determining of characteristics between expansion unit and main unit, element 11, figure 1).

Ninomiya does not disclose a processor disposed on said circuit board.

Lee analogously teaches an option card (figure 2b) with a processor disposed on said circuit board (CPU 402, figure 4a).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to insert the option card of Lee into the option card slot of Ninomiya. One of ordinary skill in the art would be motivated to make such modifications in order to allow for an efficient and flexible means for users to replace a processor in a unit without exorbitant costs (column 2, lines 1 – 10).

The examiner notes that the determination of the function of a circuit board is not limited to one step of the photo-sensor detecting presence of an inserted option card. Once a card is inserted the apparatus of Ninomiya has a photo-sensors 30 and 31 figure 1, in

Art Unit: 2182

conjunction with photo-emitters which generates card detection signals DTE1 and DTE2, as can be seen from the citation from the original office action. Upon generation of the DTE signals the process corresponds with address decoders that receive and decode the I/O address supplied to the system (column 8, lines 35 – 41) and the characteristics can be matched as seen in figure 4 and further can be configured via the I/O address map to determine the characteristic functionality of the option card seen in figure 5. Thus the examiner reasserts that the originally cited photo-sensor represents the detection step of an entire process of determining the characteristics and Ninomiya teaches the entire analogous process. (Please refer to examiners rebuttal in response to arguments for further analysis)

13. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per claim 2, Ninomiya teaches the apparatus wherein said means located within said enclosure for displaying a characteristic of the slot comprises means for generating at least one signal, and at least one tab disposed within the interior of the slot capable of substantially reducing the at least one signal (light from photo emitter to photoreceptor is considered at least one signal generated, column 8, lines 7 – 10).

14. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per claim 3, Ninomiya teaches an apparatus wherein said means disposed on said circuit board for detecting the characteristic of the slot comprises means for detecting the at least one signal (photo sensors, elements 30-31, figure 1).



15. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per claim 4, Ninomiya teaches an apparatus wherein said means for generating at least one signal comprises a source of light (photo emitter, column 8, lines 7 – 10), and wherein said means for detecting the characteristic of the slot comprises at least one light detector (photo-sensor, element 30, figure 1) adapted for detecting light generated from said source of light.

16. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per claim 5, Ninomiya teaches an apparatus wherein said at least one tab is disposed in a pattern characteristic of the slot, and said at least one light detector, reproduces the pattern characteristic of the slot (indication of the option card generated based on signal DTE2, column 8, lines 21 – 27).

17. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per claim 6, Ninomiya teaches an apparatus wherein the light generated from said source of light is substantially reduced by said at least one tab when said at least one tab is disposed between said source of light and said at least one light detector (passage of light block upon insertion of option card substantially reducing the light generated from the source in reference to the opposing photo-sensor, column 8, lines 21 – 24).

18. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per

Art Unit: 2182

claims 7 and 9, Ninomiya teaches an apparatus wherein said at least one source of light comprises at least one light emitting diode (photo-emitter, column 8, lines 7 – 10) and said at least one light detector comprises a charge-coupled detector (photo-receptor, column 8, lines 10 – 13).

19. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per claim 8, Ninomiya teaches an apparatus wherein said means displaying a characteristic of the slot comprises at least one source of light; and said means for detecting the characteristic of said slot comprises at least one light detector adapted for detecting light generated by said at least one source of light, whereby the pattern characteristic of the slot is reproduced by said at least one light detector.

20. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per claim 10 an apparatus wherein said means for detecting the characteristic of the slot comprises at least one microswitch (microswitch, column 8, lines 33 – 35) in electrical communication with said processor, and said means for displaying a characteristic of the slot comprises at least one projection positioned on a wall of said enclosure disposed in a pattern characteristic of the slot and adapted to actuate one of said at least one microswitch when said circuit board is inserted into the slot, such that the characteristic of the slot is sensed by said at least one microswitch (mechanically detected by means of microswitch through detection of a change in voltage to certain

pins of the expansion connector, column 8, lines 27 - 35).

21. Claims 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ninomiya in view of Lee further in view of Pope et al. (US Patent Number 4,781,066).

22. Ninomiya modified by the teachings of Lee as applied in claim 1 above as per claims 11 and 18, fails to teach and apparatus wherein said means disposed on said circuit board for detecting the characteristic of the slot comprises a Hall-effect apparatus.

Pope et al. analogously teaches an apparatus wherein said means disposed on said circuit board for detecting the characteristic of the slot comprises a Hall-effect apparatus (element 75, figure 6, column 6, lines 36 - 40).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the combination of Ninomiya and Lee with the above teaches of Pope et al. One of ordinary skill would have been motivated to make such modification in order to have a detection system that permits enhanced sensitivity and noise immunity in the system (column 7, lines 7 - 10).

### ***Response to Arguments***

23. Applicant's arguments filed 8/4/2006 have been fully considered but they are not persuasive. The applicant argues that there is no teaching of apparatus for determining

Art Unit: 2182

the function of a circuit board disposed in a slot in an enclosure and Ninomiya only teaches a card detection device that detects whether a card is connected to the expansion connector and is located in the card insertion path of the expansion slot.

24. As per the applicant's argument the examiner respectfully disagrees. The examiner notes that the determination of the function of a circuit board is not limited to one step in the apparatus of Ninomiya but in actuality is a series of steps in a process to determine the characteristics of the inserted option card. The citation of the photo-sensor/emitter that the applicant argues is only correlating to the step of detection of an inserted device. Upon detection the photo-sensor/emitter generates a card detection signal DTE. Once the DTE is stored in the register the apparatus of Ninomiya continues with the characteristic determination to exactly figure out based upon the I/O address map at addresses 200H and above as seen figure 5, column 10, lines 10 – 45. Ninomiya also contributes to the determination process by having an address decoder further associated with match/no match detection circuit as seen in figure 4. Please note explanation above for the rejection of claim 1. Clearly from this citation that the determination of the characteristic is a process and not just one step of a photo-sensor one of ordinary skill in the art would note there is teaching of apparatus for determining the function of a circuit board disposed in a slot in an enclosure.

### ***Conclusion***


Art Unit: 2182

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aurangzeb Hassan whose telephone number is (571) 272-8625. The examiner can normally be reached on Monday - Friday 9 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AH  
4/24/2006



KIM HUYNH  
SUPERVISORY PATENT EXAMINER  
10/18/06